Phase (check one)	Type (check one)
X Initial Site Investigation	Work Scope
Corrective Action Feasibility Investigation	X Technical Report
Corrective Action Plan	PCF Reimbursement Request
Corrective Action Summary Report	General Correspondence

INITIAL SITE INVESTIGATION

City of St. Albans
St. Albans Department of Public Works
67 Aldis Street
St. Albans, VT 05478

SMS Site # 96-2036

prepared for:

Mr. William Cioffi
City of St. Albans
100 North Main Street
St. Albans, VT 05487

Prepared By:

North Country Environmental Services, Inc.
NCES Job #: 1137
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October 30, 1996

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INITIAL SITE INVESTIGATION

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

An Initial Site Assessment has been performed at the City of St. Albans, Department of Public Works (DPW) Yard located at 67 Aldis Street, St. Albans, Vermont (Facility ID #1439). This report was performed in response to the discovery of a release of gasoline during the removal of two (2) underground gasoline storage tanks. During the removal of the two (2) underground storage tanks (UST's) on August 29, 1996, elevated total organic vapor (TOV) readings were obtained from soil samples collected from the UST excavation. Soil samples collected between the two (2) UST's at a depth of 2'-3' produced TOV readings of 140 ppm, 50 ppm and 120 ppm.

The final tank excavation measured 16' x 22' with a depth of 9' below grade. No contaminated soil was removed from the excavation during the tank removal process. Mr. Michael McCarley of North Country Environmental Services, Inc., (NCES) contacted Mr. Ted Unkles at the Vermont Department of Environmental Conservation upon completion of the field testing and received authorization to backfill the excavation using native overburden and clean fill.

Soil screening results collected during this Initial Site Assessment reported significant readings of TOV from four of the five boring locations. Boring numbers, B-01, B-02, B-03 and B-05 reported readings of 200 ppm TOV. Boring number, B-04 reported a high reading of 6.8 ppm TOV. Soil analysis revealed total BTEX levels (Benzene, Toluene, Ethylbenzene and Xylenes) ranging from 1,456 µg/kg in B-04 to 99,400 µg/kg in boring, B-02. The analytical results from groundwater samples collected from the four monitoring wells reported benzene levels ranging from 795 µg/L in MW-01 to 12,100 µg/L in MW-02. Other BTEX compounds were also detected in each monitoring well sampled. Gasoline was detected by EPA Method 8015 at 29.5 mg/L in MW-01, 107 mg/L in MW-02, 22.6 mg/L in MW-03 and 29.5 mg/L in MW-04.

North Country Environmental Services recommends the following actions:

- Advance six (6) additional soil borings at the site to better delineate the boundaries of the soils impacted by the release of gasoline. Conduct split spoon sampling at five foot intervals and field screen samples by the jar head space method for total organic vapor (TOV).

- Prepare a site drawing which depicts the distribution of contaminated soils at the subject site.

- Sample the groundwater monitoring well directly adjacent to the former tank excavation. This well was installed several years ago by the City of St. Albans for leak detection. This sample will be analyzed by EPA Method 8015.

- Utilizing all of the groundwater analysis, prepare a map depicting the plume of dissolved BTEX at the subject site.

- Prepare a summary report which will include recommendations, if warranted, for corrective actions.

INTRODUCTION

It is the purpose of this report to outline the scope of work and results of the Initial Site Investigation activities which were performed at the property identified as the City of St. Albans DPW Yard, 67 Aldis Street, St. Albans, VT.

On September 25, 1996, an investigation of the gasoline release was conducted at the subject site. This assessment was performed by North Country Environmental Services, Inc., (NCES). In order to evaluate the soil conditions and groundwater surrounding the former tank excavation, five (5) soil borings were advanced by Green Mountain Boring under the direct supervision of North Country Environmental Services, Inc., (NCES). Four (4) monitoring wells were installed in selected boring locations.

WORK PLAN

Based on discussions between Mr. William Cioffi, City Manager and Gary Palmer, St. Albans Fire Chief, the assessment of the subject site was fast tracked by use of the "Site Investigation Expressway Notification" process. This notification was made to the Waste Management Division of the Vermont Department of Environmental Conservation. Assessment work was to be performed to determine the severity of contamination present at the subject site.

As mentioned in the previous section, five (5) soil borings were proposed in the work plan. Four (4) of the borings were to be converted into 2" PVC groundwater monitoring wells. All soil samples collected during split spoon sampling were to be screened for total organic vapor (TOV) by the jar head-space method utilizing an HNu photoionization detector. Soil analysis was to include the following: five (5) selected soil samples to be analyzed by EPA Method 8020, three (3) selected soil samples to be analyzed by EPA Method 8015 and one (1) soil sample to be analyzed for RCRA 5 Metals. Groundwater samples from the monitoring wells were to be analyzed by EPA Method 602 and 8015. On September 11, 1996, NCES was contracted by the City of St. Albans to implement the scope of work.

SITE DESCRIPTION

The release occurred in the center portion of the DPW Yard property, in the vicinity of a small storage shed. The gasoline tanks, 3,000 gallon and 1,000 gallon, were located adjacent to north side of the shed. The fuel pumps were also located in this area. The DPW Yard is identified by the City of St. Albans Assessors Office as Map 6, (tax exempt, no lot number issued). The site is located along the north side of Aldis Street. For site location reference, maps are included in Appendix A.

The site consists of two (2) one story high bay buildings and a small aluminum shed which are surrounded by gravel and dirt driveway/parking areas and vegetated areas. The area of the property behind the two (2) buildings is utilized for storage of road materials and dirt.

The land utilization in the vicinity of the subject parcel is a mixture of commercial and residential. Specifically, the site is bordered to the north by residential/elderly housing property, to the east by Stevens Brook and Central Vermont Railway property, to the west by North Elm Street and residential properties, and to the south by Aldis Street and a community baseball field.

The site area topography is relatively flat with a gentle grade toward the east. There are no delineated wetlands on the subject site. Stevens Brook flows parallel to the eastern site boundary.

Underground utilities on the site are limited to municipal water, sewer and a storm water drainage system. The electrical service and telephone service are located overhead. Small electrical lines run underground for service to the former fuel pumps and to the small aluminum shed. Sensitive environmental receptors within 1,000 feet of the subject site are limited to the private residences to the west, northwest and southwest along North Elm Street and Stevens Brook to the east.

SITE HISTORY

Based upon interviews with Allen Robtoy, Superintendent of Highway and Roads, Gary Palmer, City of St. Albans Fire Chief, and a review of available records, the DPW Yard was constructed and began operations in 1979. The two (2) main garage buildings were constructed in 1979. The aluminum shed and the two (2) gasoline tanks were installed in 1984.

In the mid to late 1950's, the subject property was utilized by the S.T. Griswold Company to crush and store stone for production of concrete aggregate. In the 1960's and prior to the construction of the DPW Yard in 1979, the subject property was a vacant field.

At the time of the Initial Site Investigation, no hazardous products were observed outside of any of the on-site buildings. Small quantities of oils, fuel and cleaning supplies were observed in the DPW buildings. Drums of lubricating oil were observed within the aluminum shed. No underground storage tanks are currently located on the subject site.

SOIL BORING ADVANCEMENT AND MONITORING WELL INSTALLATION

On September 25, 1996, five (5) soil borings were advanced at the site as outlined in the scope of work. The borings were advanced by Green Mountain Boring under the direct supervision of North Country Environmental Services, Inc. The borings were advanced to establish site soil characteristics, collect samples for on-site screening, and to install groundwater monitoring wells.

All borings were advanced utilizing a truck mounted hydraulic rotary drill rig utilizing continuous flight 4.25 inch ID hollow stem augers. All down hole drilling equipment and tools were decontaminated prior to use at each boring location to prevent potential cross contamination. These borings were advanced in the overburden soils to depths ranging from approximately 12 to 17 feet below grade. Copies of all soil boring logs are available in Appendix C.

Following the soil boring advancement, four locations were chosen to be completed as groundwater monitoring wells in order to determine groundwater elevations across the work area and also to collect groundwater samples for analytical testing. MW-01 was placed in the dirt area, approximately 14 feet west of the former tank excavation. MW-02 was placed in the dirt area, approximately 12 feet to the east of the former tank excavation. MW-03 was placed approximately 40 feet to the north of the aluminum shed, approximately 20 feet to the north of the former tank excavation and MW-04 is located approximately 22 feet to the south of the former tank excavation. The locations of all monitoring wells and borings are presented on the Site Map in Appendix A.

All monitoring wells were constructed of 2 inch ID schedule 40 PVC pipe with flush threads and end caps. The screen sections of each well were constructed of .010-inch slotted, 2 inch ID schedule 40 PVC pipe with flush threads. The well screen in each well was installed to intercept the elevation of the upper level groundwater. Following placement of the riser pipe and screen section of each well, the annular space was filled with washed silica sand to a level approximately two feet above the well screen. A two foot bentonite seal was then installed above the sand pack. The remainder of the annular space was then filled with washed silica sand. Watertight aluminum roadway boxes were placed at grade and sealed with concrete to complete installation. The table below outlines the monitoring well construction details.

MONITORING WELL CONSTRUCTION DETAILS

Well Number	Date Installed	Total Depth	Well Screen Location
MW-01	09/25/96	14.5 feet	4.5 - 15.0 feet
MW-02	09/25/96	14.5 feet	4.5 - 15.0 feet
MW-03	09/25/96	14.5 feet	4.5 - 15.0 feet
MW-04	09/25/96	14.5 feet	4.5 - 15.0 feet

During the advancement of soil borings on the site, soil samples were collected from each location utilizing 24 inch long by 2 inch ID split spoon samplers. Split spoon samples were collected at five foot intervals or strata change utilizing the Standard Penetration Test Method. Following all sampling, each split spoon was decontaminated in the field with an alconox solution, steam and water. The standard blow counts per 6 inch penetration are listed on the Soil Boring Logs in Appendix C. All soil samples were classified in the field in accordance with the Modified Burmister Soil Classification System. Please refer to the Soil Boring Logs for the detailed soil characteristics at each sampling location.

All soil samples collected from the borings were screened in the field for the presence of total organic vapor (TOV) by jar headspace method utilizing a pre-calibrated HNu Photoionization Detector, Model HW 101. The table on the following page outlines the results of the TOV field screen.

SOIL SCREEN TOV RESULTS

Boring Location	Sample Depth	TOV Result
B-01 (MW-01)	0" - 6"	1.2 ppm
	5 feet - 7 feet	200 ppm
	10 feet - 12 feet	no sample recovery
	15 feet - 17 feet	9.0 ppm
B-02 (MW-02)	0" - 6"	4.0 ppm
	5 feet - 7 feet	220 ppm
	10 feet - 11 feet	260 ppm
	11 feet - 12 feet	18.0 ppm
	15 feet - 17 feet	14.0 ppm
B-03 (MW-03)	0" - 6"	1.4 ppm
	2 feet - 4 feet	210 ppm
	5 feet - 7 feet	180 ppm
	10 feet - 11 feet	7.0 ppm
	11 feet - 12 feet	2.0 ppm
B-04	0" - 6"	0.0 ppm
	5 feet - 7 feet	4.8 ppm
	10 feet - 12 feet	0.0 ppm
	15 feet - 17 feet	6.8 ppm
B-05 (MW-04)	0" - 6"	0.0 ppm
	2 feet - 4 feet	210 ppm
	5 feet - 7 feet	175 ppm
	10 feet - 11 feet	220 ppm
	11 feet - 12 feet	42.0 ppm
	15 feet - 17 feet	7.0 ppm

Notes: 1. HNu calibrated on-site prior to use with isobutylene.
2. TOV results expressed as ppm (v/v benzene).

SOIL ANALYSIS

Selected samples from each boring location advanced on September 25, 1996, were submitted for laboratory analysis. Selected soil samples were analyzed for volatile aromatic compounds by EPA Method 8020, EPA Method 8015 and Total RCRA 5 Metals. The table below summarizes the soil analysis results.

SOIL ANALYSIS RESULTS

SAMPLE #	DEPTH	TEST METHOD	PARAMETER	RESULT
B-01	2 feet - 4 feet	EPA Method 8020	Benzene	ND
			Toluene	2,190 µg/kg
			Ethylbenzene	1,060 µg/kg
			Xylenes	7,580 µg/kg
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	ND
B-01	8 feet - 9 feet	EPA Method 8015	Gasoline	46.8 mg/kg
			Benzene	1,060 µg/kg
			Toluene	2,630 µg/kg
			Ethylbenzene	815 µg/kg
			Xylenes	5,660 µg/kg
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	ND
			Methyl Ethyl Ketone	40.0 µg/kg
			4-Methyl-2-pentanone	ND
			Naphthalene	ND
B-02	6 feet - 7 feet	EPA Method 8015	Gasoline	5,310 mg/kg
			Benzene	27,500 µg/kg
			Toluene	47,800 µg/kg
			Ethylbenzene	13,700 µg/kg
			Xylenes	10,400 µg/kg
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	ND
			Methyl Ethyl Ketone	ND
			4-Methyl-2-pentanone	ND
			Naphthalene	10,600 µg/kg

SOIL ANALYSIS RESULTS CONTINUED...

SAMPLE #	DEPTH	TEST METHOD	PARAMETER	RESULT
B-02	10 feet - 11 feet	EPA Method 8020	Benzene	1,270 µg/kg
			Toluene	14,800 µg/kg
			Ethylbenzene	3,070 µg/kg
			Xylenes	29,500 µg/kg
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	ND
B-03	2 feet - 6 feet	EPA Method 8020	Benzene	ND
			Toluene	593 µg/kg
			Ethylbenzene	663 µg/kg
			Xylenes	4,030 µg/kg
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	ND
B-04	15 feet - 17 feet	EPA Method 8020	Benzene	ND
			Toluene	162 µg/kg
			Ethylbenzene	94.8 µg/kg
			Xylenes	1,200 µg/kg
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	ND
B-05	2 feet - 4 feet	EPA Method 8015	Gasoline	637 mg/kg
			Benzene	2,980 µg/kg
			Toluene	13,800 µg/kg
			Ethylbenzene	6,160 µg/kg
			Xylenes	31,100 µg/kg
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	ND
			Methyl Ethyl Ketone	ND
			4-Methyl-2-pentanone	ND
			Naphthalene	38,000 µg/kg

SOIL ANALYSIS RESULTS CONTINUED...

SAMPLE #	DEPTH	TEST METHOD	PARAMETER	RESULT
B-05	10 feet - 11 feet	EPA Method 8020	Benzene	ND
			Toluene	2,860 µg/kg
			Ethylbenzene	2,340 µg/kg
			Xylenes	15,600 µg/kg
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	ND
B-05	10 feet - 11 feet	Methods 3010, 6010 & 7,471	Arsenic	11.8 mg/kg
			Cadmium	0.90 mg/kg
			Chromium	125 mg/kg
			Lead	4.57 mg/kg
			Mercury	0.081 mg/kg

MONITORING WELL SAMPLING

Following the installation of the monitoring wells on the property, each was properly developed. The purpose of the well development was to remove sediment and enhance the hydraulic connection between the monitoring well and the aquifer. On September 30, 1996, samples were collected from the on-site monitoring wells. Prior to sample collection, the depth to groundwater and total depth was measured to the nearest 0.01 foot with an ORS Interface Probe. The groundwater depth measurement, as well as a description of the odor and appearance of the groundwater was logged in the field. Petroleum odor and a trace sheen was noted in samples collected from each of the four (4) monitoring wells. A minimum of three (3) well volumes of groundwater was removed from each well and was then allowed to recharge prior to sample collection.

All groundwater samples collected from the site were properly packaged and preserved pending delivery to GeoLabs, Inc., for analysis under a signed chain of custody. Specifically, samples from each well were analyzed for volatile aromatic compounds by EPA Method 602 and gasoline range petroleum compounds by EPA Method 8015. Copies of the laboratory reports are available in Appendix D.

GROUNDWATER ANALYSIS

SAMPLE #	LOCATION	TEST METHOD	PARAMETER	RESULTS
MW-01	Monitoring Well #1	EPA Method 8015/602	Gasoline	29.5 mg/L
			Benzene	795 µg/L
			Toluene	545 µg/L
			Ethylbenzene	55.4 µg/L
			Xylenes	277 µg/L
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	3,260 µg/L
			Methyl Ethyl Ketone	ND
			4-Methyl-2-pentanone	ND
			Naphthalene	ND
MW-02	Monitoring Well #2	EPA Method 8015/602	Gasoline	107 mg/L
			Benzene	12,100 µg/L
			Toluene	20,800 µg/L
			Ethylbenzene	680 µg/L
			Xylenes	12,500 µg/L
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	1,420 µg/L
			Methyl Ethyl Ketone	18 µg/L
			4-Methyl-2-pentanone	9.78 µg/L
			Naphthalene	ND
MW-03	Monitoring Well #3	EPA Method 8015/602	Gasoline	22.6 mg/L
			Benzene	842 µg/L
			Toluene	2,190 µg/L
			Ethylbenzene	168 µg/L
			Xylenes	4,320 µg/L
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	1,420 µg/L
			Methyl Ethyl Ketone	20.7 µg/L
			4-Methyl-2-pentanone	ND
			Naphthalene	ND

GROUNDWATER ANALYSIS CONTINUED...

SAMPLE #	LOCATION	TEST METHOD	PARAMETER	RESULTS
MW-04	Monitoring Well #1	EPA Method 8015/602	Gasoline	29.5 mg/L
			Benzene	1,630 µg/L
			Toluene	3,260 µg/L
			Ethylbenzene	418 µg/L
			Xylenes	3,880 µg/L
			1,2-Dichlorobenzene	ND
			1,3-Dichlorobenzene	ND
			1,4-Dichlorobenzene	ND
			Chlorobenzene	ND
			Methyl tert-butyl ether	1,350 µg/L
			Methyl Ethyl Ketone	ND
			4-Methyl-2-pentanone	ND
			Naphthalene	ND

SITE GEOLOGY

Based on an inspection of the soil samples obtained by split spoon at the site during the advancement of soil borings, the upper surficial geology at the site consists of a mixture of fine to medium sand, some silt, and trace fine gravel. Clay and silty clay was also encountered at approximately 12 feet below grade. A specific description of the split spoon soils at each boring location is outlined in the soil boring logs available in Appendix B.

According to published bedrock maps, the bedrock in the vicinity of the site has been identified as part of the Dunham Dolomite. This formation is Cambrian in age.

SITE HYDROGEOLOGY

Groundwater at the site has been measured to be present at depths which range from approximately 4.75 feet at MW-04, to approximately 6.32 feet below grade at MW-03. In addition to the groundwater depth measurements, the wellhead elevation of each monitoring well was established utilizing a surveying level, and the location of each well was established with reference to the site. This information was collected to establish the upper level groundwater flow across the site. From the triangulation of the groundwater elevation from three on-site wells, the groundwater has been identified to be flowing in a northwesterly direction. The data utilized to calculate the groundwater flow direction is presented in the table on the following page.

WELLHEAD ELEVATION AND GROUNDWATER DEPTH MEASUREMENTS

Well Number	Wellhead Elevation	Depth to Groundwater	Groundwater Elevation
MW-01	98.24 feet	5.52 feet	92.72 feet
MW-02	99.21 feet	5.74 feet	93.47 feet
MW-03	98.50 feet	6.32 feet	92.18 feet
MW-04	99.06 feet	4.75 feet	94.31 feet

Notes:

1. Measurements taken on October 3, 1996.
2. Ground elevations surveyed relative to an arbitrary reference datum of 100.00 feet.

POTENTIAL RECEPTORS

As part of this initial investigation, an assessment of relevant sensitive receptors at the subject site was performed. This receptor assessment included public and private water supplies, surface waters, wetlands, sensitive ecological areas, outdoor and indoor air, enclosed spaces, and utilities.

On the basis of site reconnaissance and interviews with personnel at the DPW Yard, the subject site and areas surrounding the subject site receive drinking water from the City of St. Albans public water supply system. The sources of the water for the City of St. Albans are Lake Champlain, two (2) miles to the west of the subject site and Fairfax Reservoir located 3.5 miles to the southeast of the subject site in Fairfax, Vermont. There are no delineated wetlands on the site.

During the advancement of soil borings on the site, ambient air screenings were performed with a photoionization detector. No total organic vapor (TOV) readings were recorded from any boring location. An inspection of the three (3) buildings located at the DPW Yard revealed no basements or visible enclosed spaces.

Stevens Brook flows parallel to the eastern site boundary. This surface water is not used for drinking water or agriculture. On the basis of an inspection of the stream bank and water, no evidence of adverse impact from the subject site to the stream has been identified at this time.

SUMMARY AND RECOMMENDATIONS

In accordance with the scope of work which was conducted through the "Expressway Notification" process, an Initial Site Assessment has been performed at the City of St. Albans DPW Yard, in the location of the former underground gasoline storage tanks. The investigation was performed in response to the discovery of gasoline contaminated soil during the tank removal process on August 29, 1996.

In order to investigate the potential impact to on-site soil and groundwater, five (5) soil borings were advanced and four (4) shallow groundwater monitoring wells were installed on the site on September 25, 1996. Soils were screened in the field for total organic vapor (TOV) by jar headspace method with a photoionization detector. Five soil samples were analyzed for volatile aromatic compounds by EPA Method 8020, three soil samples were analyzed for gasoline petroleum content by EPA Method 8015 and one soil sample was analyzed for total RCRA 5 Metals. Groundwater was collected and analyzed from each of the four monitoring wells for VOCs by EPA Method 8015/602.

Soil screening results reported significant readings of TOV from four of the five boring locations. Borings number B-01, B-02, B-03 and B-05 reported readings of 200 ppm TOV. Boring number, B-04 reported a high reading of 6.8 ppm TOV. Soil analysis revealed total BTEX levels (Benzene, Toluene, Ethylbenzene and Xylenes) ranging from 1,456 µg/kg in B-04 to 99,400 µg/kg in boring, B-02. The table below summarizes the BTEX total obtained at each boring location.

TOTAL BTEX FOR EACH SOIL BORING

BORING #	SAMPLE DEPTH	TOTAL BTEX
B-01	2 feet - 4 feet	10,830 µg/kg
	8 feet - 9 feet	10,165 µg/kg
B-02	6 feet - 7 feet	99,400 µg/kg
	10 feet - 11 feet	48,640 µg/kg
B-03	2 feet - 6 feet	5,286 µg/kg
B-04	15 feet - 17 feet	1,456 µg/kg
B-05	2 feet - 4 feet	54,040 µg/kg
	10 feet - 11 feet	20,800 µg/kg

The analytical results from groundwater samples reported detectable compounds above the method detection limits for each test performed. Benzene levels ranged from 795 µg/L in MW-01 to 12,100 µg/L in MW-02. Gasoline detected by EPA Method 8015 was detected at 29.5 mg/L in MW-01, 107 mg/L in MW-02, 22.6 mg/L in MW-03 and 29.5 mg/L in MW-04.

Hydrogeologic conditions indicate groundwater to be present between approximately 4.75 and 6.32 feet below grade, and that groundwater was established to be traveling in a northwesterly direction across the site.

Following an assessment of potential receptors on the site, and upon consideration of the results of groundwater testing, there is no current evidence of adverse impact to the drinking water supplies for the City of St. Albans or the stream adjacent to the subject site..

On the basis of the previous summary, North Country Environmental Services, Inc., recommends the following actions:

- Advance six (6) additional soil borings at the site to better delineate the boundaries of the soils impacted by the release of gasoline. Conduct split spoon sampling at five foot intervals and field screen samples by the jar head space method for total organic vapor (TOV).

- Prepare a site drawing which depicts the distribution of contaminated soils at the subject site.

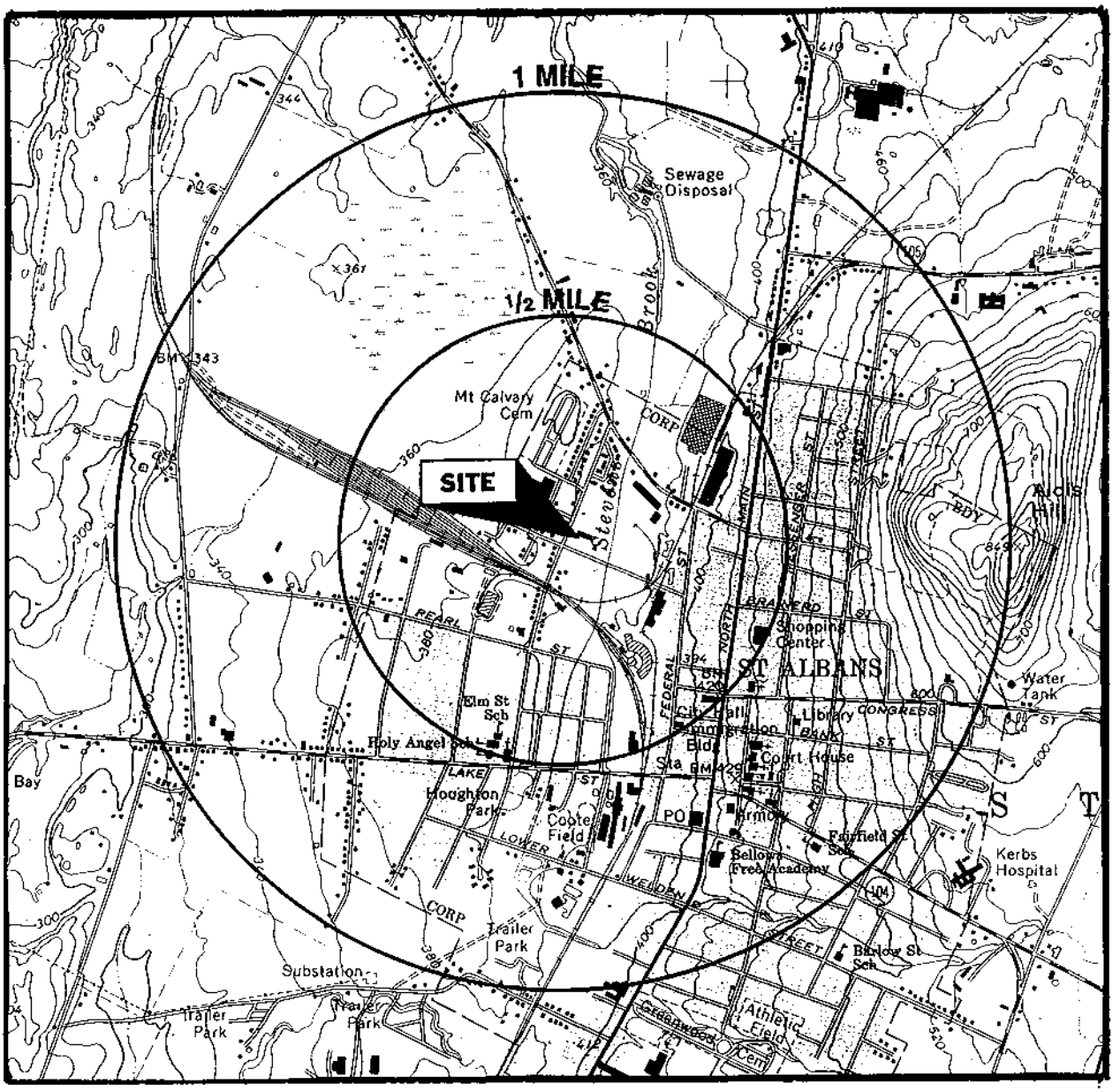
- Sample the groundwater monitoring well directly adjacent to the former tank excavation. This well was installed several years ago by the City of St. Albans for leak detection. This sample will be analyzed by EPA Method 8015.

- Utilized all of the groundwater analysis, prepare a map depicting the plume of dissolved BTEX at the subject site.

- A summary report will be prepared to present the data collected from the above recommendations. This report will include recommendations for corrective actions of the soil and groundwater contamination, if found to be warranted.

APPENDIX A

Site Maps



67 Aldis Street
Department of Public Works
St. Albans, Vermont

Locus Map

SCALE 1:25 000

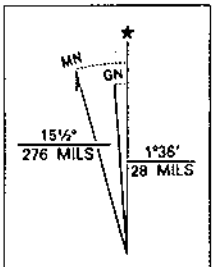
1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

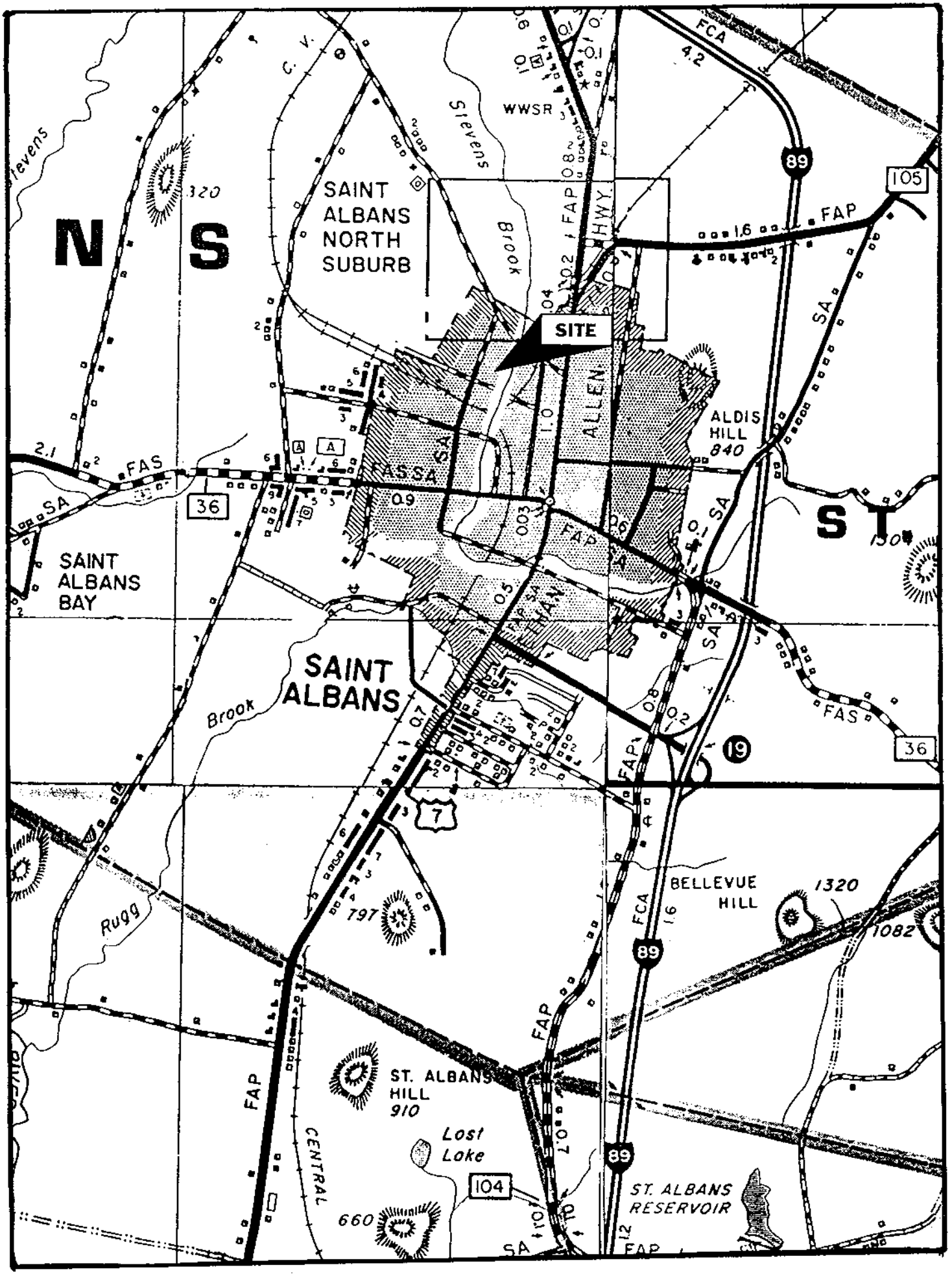
CONTOUR INTERVAL 10' FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 9.5 FEET

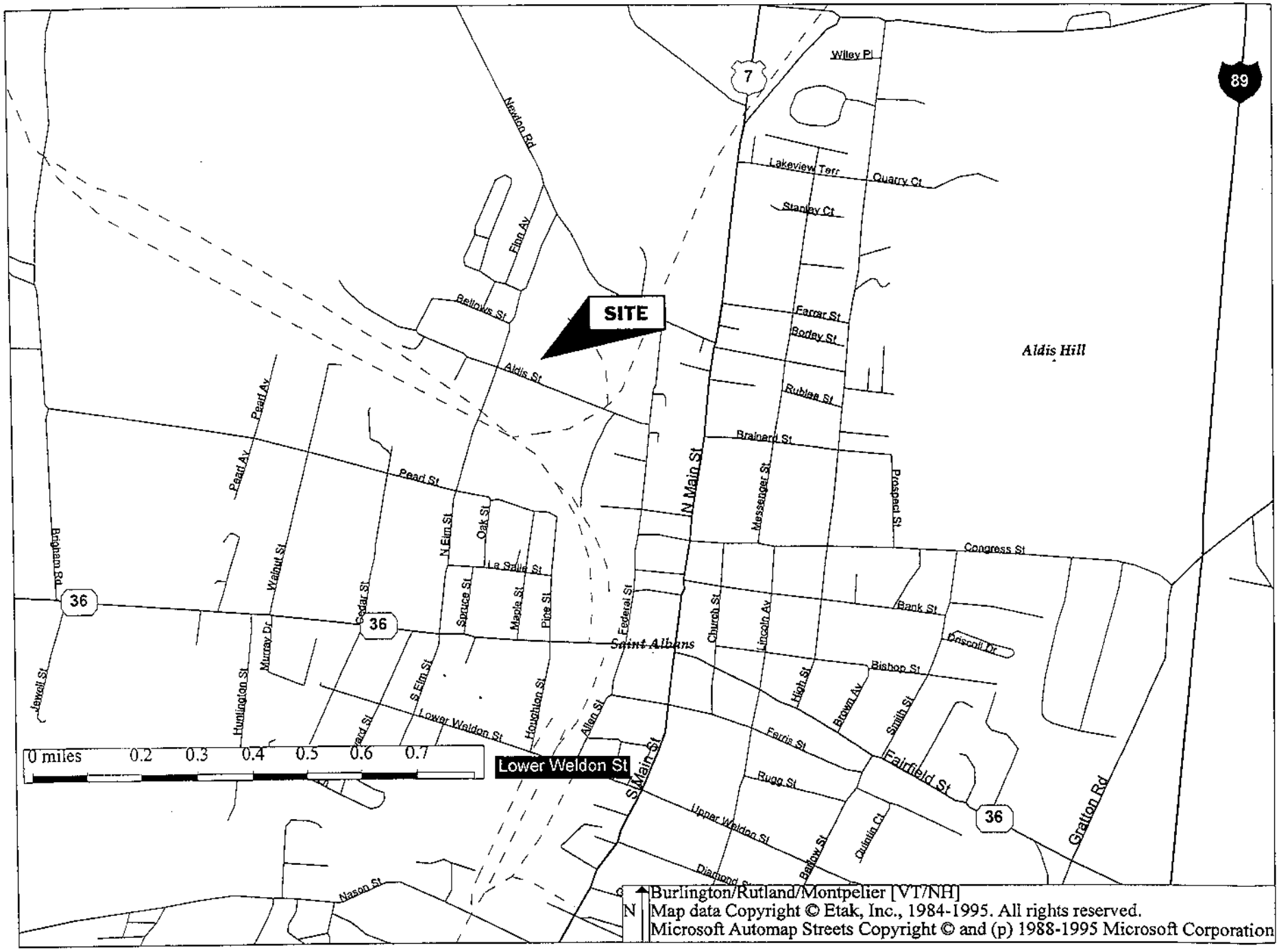
DECLINATION DIAGRAM



UTM grid convergance (GN) and 1987 magnetic declination (MN) at center of map
Diagram is approximate

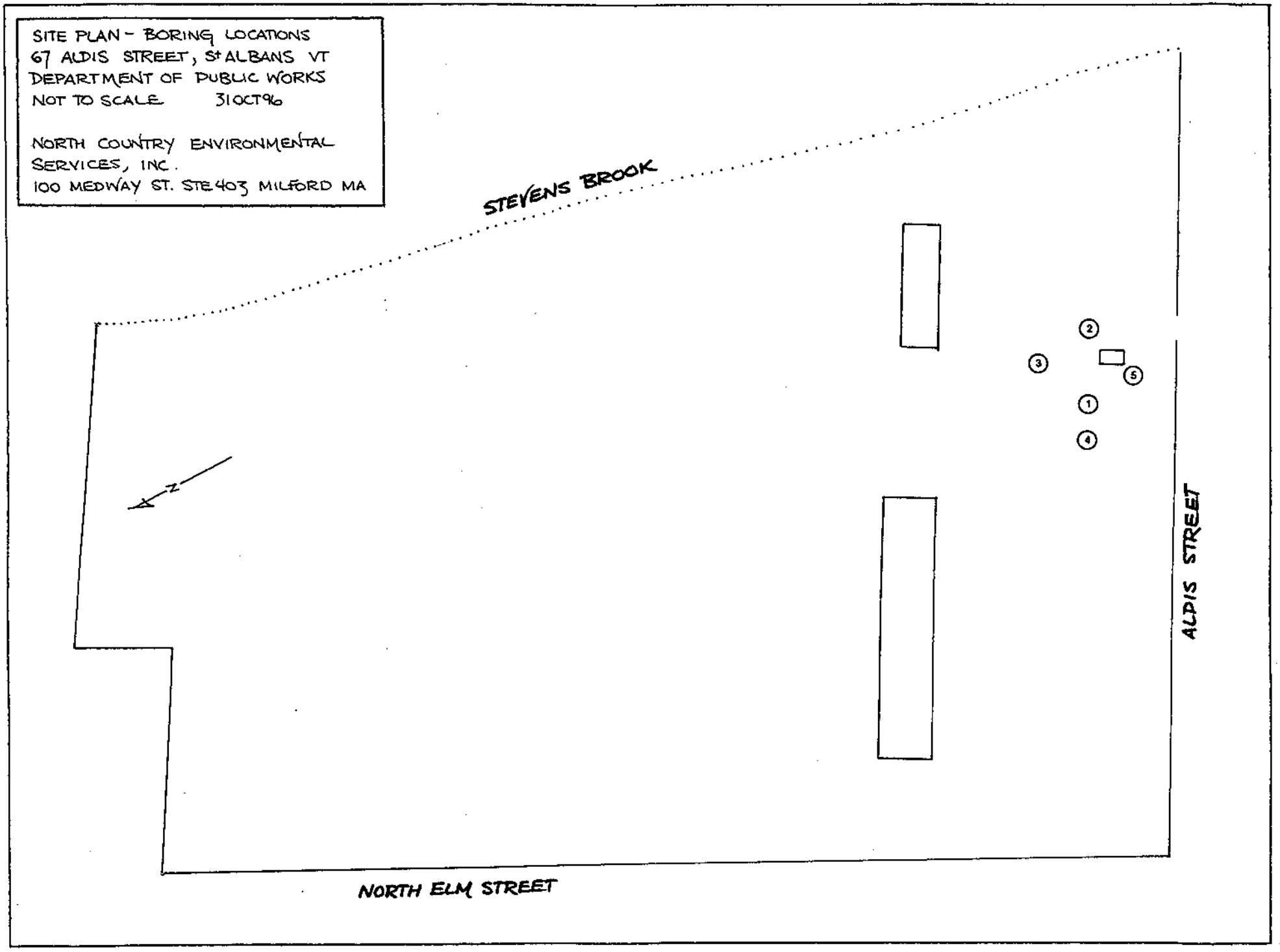
NORTH COUNTRY ENVIRONMENTAL SERVICES

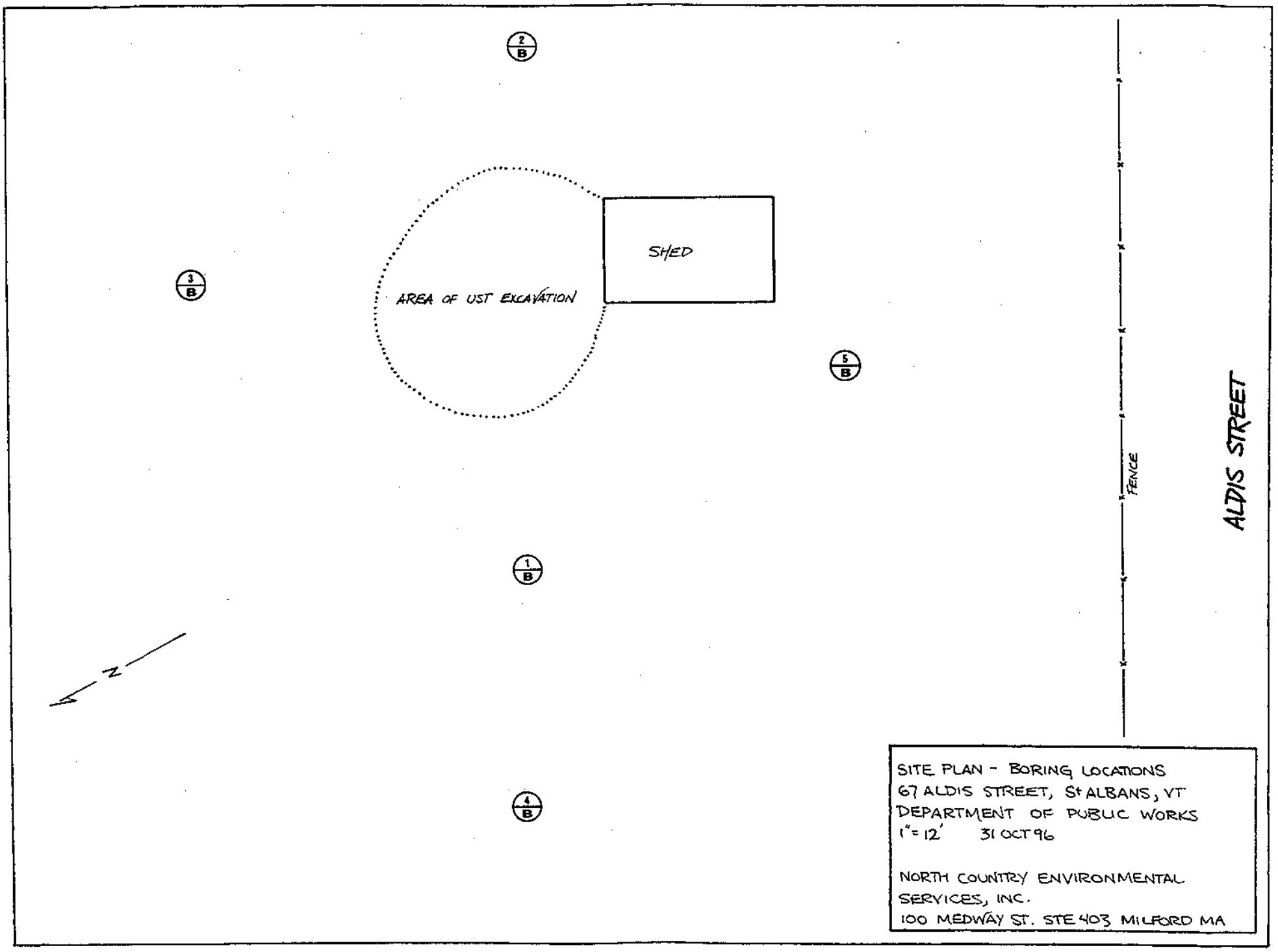

SAINT ALBANS NORTH SUBURB
SITE
SAINT ALBANS BAY
SAINT ALBANS
ALDIS HILL 840
BELLEVUE HILL 1320
ST. ALBANS HILL 910
ST. ALBANS RESERVOIR
Lost Lake
Stevens Brook
Brook
Rugg
ALLEN
CENTRAL
WWSR
HWY.
FCA
FAP
FAS
SA
36
89
105
104
7
19
797
660
1082


SITE
Lower Weldon St
Aldis Hill
Saint Albans
Wiley Pl
Lakeview Terr
Quarry Ct
Stanley Ct
Farrar St
Bordey St
Rublee St
Brainerd St
Prospect St
Congress St
Bank St
Driscoll Dr
Bishop St
Ferris St
Rugg St
Upper Weldon St
Diamond St
Fairfield St
Gratton Rd
Bellows St
Dulmin Ct
Newton Rd
Finn Av
Bellows St
Aldis St
Peard Av
Peard St
Brigham Rd
Walnut St
Murray Dr
Cedar St
N Elm St
Oak St
La Salle St
Spruce St
Maple St
Pine St
S Elm St
Reid St
Huntington St
Houghton St
Allen St
Federal St
N Main St
S Main St
Church St
Lincoln Av
High St
Brown Av
Smith St
Messenger St
Jewell St
Nason St
7
89
36
0 miles 0.2 0.3 0.4 0.5 0.6 0.7
N
Burlington/Rutland/Montpelier [VT/NH]
Map data Copyright © Etak, Inc., 1984-1995. All rights reserved.
Microsoft Automap Streets Copyright © and (p) 1988-1995 Microsoft Corporation

SITE PLAN - BORING LOCATIONS
67 ALDIS STREET, St ALBANS VT
DEPARTMENT OF PUBLIC WORKS
NOT TO SCALE 31OCT96

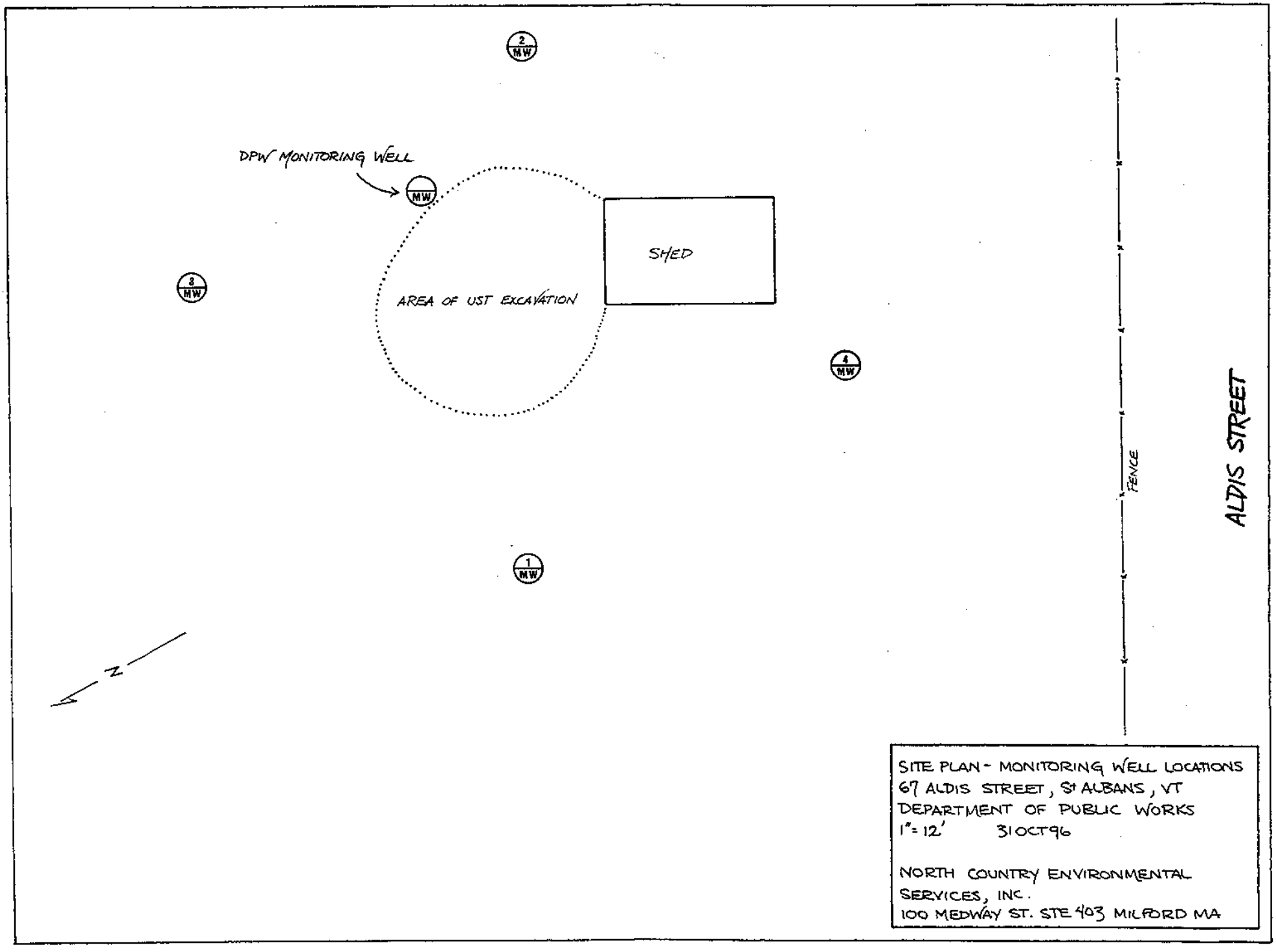
NORTH COUNTRY ENVIRONMENTAL
SERVICES, INC.
100 MEDWAY ST. STE 403 MILFORD MA





SITE PLAN - BORING LOCATIONS
67 ALDIS STREET, St ALBANS, VT
DEPARTMENT OF PUBLIC WORKS
1"= 12' 31 OCT 96

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.
100 MEDWAY ST. STE 403 MILFORD MA



SITE PLAN - MONITORING WELL LOCATIONS
67 ALDIS STREET, St ALBANS, VT
DEPARTMENT OF PUBLIC WORKS
1" = 12' 31OCT96

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.
100 MEDWAY ST. STE 403 MILFORD MA

Photographic Legend

1. Entrance to DPW Yard
2. Drum Storage Shed and Advancement of B-05
3. View South Toward Drum Storage Shed and Area of UST Excavation
4. Drum Storage Shed and Area of UST Excavation

1

2

3

4

APPENDIX C

Soil Boring Logs

GREEN MOUNTAIN BORING

PO Box 218 ° East Barre, Vermont 05649 ° 802 476-5073

TO: North Country Environmental
11 Mill Street
Barre, VT 05641
Attn.: Tom

PROJECT NAME: St. Albans Public Works

LOCATION: St. Albans

GMB JOB #: 96-132

SHEET:	1
DATE:	9/25/96
HOLE #:	MW-1
LINE & STA.	
OFFSET:	none

Ground Water Observations			Surface Elev.:	
			Date Started:	9/25/96
At none at 0 hours	Type	Augers	Date Completed:	9/25/96
	Size I.D.	4.25"	Boring Foreman:	Ron Garneau
At at hours	Hammer Wt.	140#	Inspector:	
	Hammer Fall	30"	Soils Eng.:	

LOCATION OF BORING: As shown

Depth	Casing Blows Per Foot	Sample Depths From/To	Type of Sample	Blows per 6" on Sampler	Moisture Density or Consist.	Strata Change Elev.	Soil Identification	Sample No.	Pen	Rec.
		5'-7'	SS	4/6/6/7	damp		Gray silty fine sand with a strong stench	1	24"	12"
		10'-12'	SS	3/4/3/3			No recovery pushed stone	2	24"	0"
		15'-17'	SS	5/55/65/50	damp		Gray silty sand, small pebbles and stones till like material	3	24"	18"
							Installed well at 15' Materials used:			
							10' screen 2" PVC			
							4.5' riser 2" PVC			
							1 cone bottom cap			
							1 wing nut locking top cap			
							3 bags of sand			
							1 bag of benseal			
							1 bag of cement			
							1 road box			

Ground Surface to 15' | Used 4.25" Augers: Then installed well

SUMMARY: Earth Boring 17' Rock Coring Samples 3 **HOLE #** **MW-1**

GREEN MOUNTAIN BORING

PO Box 218 ° East Barre, Vermont 05649 ° 802 476-5073

TO: North Country Environmental
11 Mill Street
Barre, VT 05641
Attn.: Tom

PROJECT NAME: St. Albans Public Works

LOCATION: St. Albans

GMB JOB #: 96-132

SHEET:	5
DATE:	9/25/96
HOLE #:	B-05
LINE & STA.	
OFFSET:	none

Ground Water Observations				Surface Elev.:	
	Type	Augers	Split Spoon	Date Started:	9/25/96
At none at 0 hours	Size I.D.	4.25"	13/8"	Date Completed:	9/25/96
	Hammer Wt.		140#	Boring Foreman:	Ron Garneau
At at hours	Hammer Fall		30"	Inspector:	
				Soils Eng.:	

LOCATION OF BORING: As shown

Depth	Casing Blows Per Foot	Sample Depths From/To	Type of Sample	Blows per 6" on Sampler	Moisture Density or Consist.	Strata Change Elev.	Soil Identification	Sample No. Rec.	Sample Pen	
		5'-7'	SS	2/2/4/4	moist		Gray silty sand and gravel	1	24"	20"
		10'-12'	SS	2/2/3/5	wet		Gray silty soil and some clay	2	24"	24"
		15'-17'	SS	10/17/20/18	damp		Gray silty sand, gravel and stones	3	24"	18"
							Installed well at 15'			
							Materials used			
							10' screen 2" PVC			
							4.5' riser 2" PVC			
							1 cone bottom cap			
							1 wing nut locking top cap			
							3 bags of sand			
							1 bag of benseal			
							1 bag of cement			
							1 road box			

Ground Surface to 15' | Used 4.25" Augers: Then installed well

SUMMARY: Earth Boring 17' Rock Coring Samples 3 HOLE # B-05

GREEN MOUNTAIN BORING

PO Box 218 ° East Barre, Vermont 05649 ° 802 476-5073

TO: North Country Environmental
11 Mill Street
Barre, VT 05641
Attn.: Tom

PROJECT NAME: St. Albans Public Works

LOCATION: St. Albans

GMB JOB #: 96-132

SHEET:	2
DATE:	9/25/96
HOLE #:	MW-2
LINE & STA.	
OFFSET:	none

Ground Water Observations			Surface Elev.:
	Type	Augers	Split Spoon	Date Started: 9/25/96
At none at 0 hours	Size I.D.	4.25"	13/8"	Date Completed: 9/25/96
	Hammer Wt.		140#	Boring Foreman: Ron Garneau
At at hours	Hammer Fall		30"	Inspector:
				Soils Eng.:

LOCATION OF BORING: As shown

Depth	Casing Blows Per Foot	Sample Depths From/To	Type of Sample	Blows per 6" on Sampler	Moisture Density or Consist.	Strata Change Elev.	Soil Identification	Sample No.	Sample Pen	Sample Rec.
		5'-7'	SS	2/3/4/6	damp		10" of brown silty soil 14" of gray silty clay	1	24"	24"
		10'-12'	SS	5/5/6/8	damp		Gray silty clay and sand	2	24"	19"
		15'-17'	SS	8/	damp		Fine silty sand	3	24"	24"
							Installed well at 15' Materials used:			
							10' screen 2" PVC			
							4.5' riser 2" PVC			
							1 cone bottom cap			
							1 wing nut locking top cap			
							3 bags of sand			
							1 bag of benseal			
							1 bag of cement			
							1 road box			

Ground Surface to 15' | Used 4.25" Augers: Then installed well

SUMMARY: Earth Boring 17' Rock Coring Samples 3 **HOLE #** **MW-2**

GREEN MOUNTAIN BORING
PO Box 218 ° East Barre, Vermont 05649 ° 802 476-5073

TO: North Country Environmental
11 Mill Street
Barre, VT 05641
Attn.: Tom

PROJECT NAME: St. Albans Public Works

LOCATION: St. Albans

GMB JOB #: 96-132

SHEET:	3
DATE:	9/25/96
HOLE #:	MW-3
LINE & STA.	
OFFSET:	none

Ground Water Observations				Surface Elev.:
	Type	Augers	Split Spoon	Date Started: 9/25/96
At none at 0 hours	Size I.D.	4.25"	13/8"	Date Completed: 9/25/96
	Hammer Wt.		140#	Boring Foreman: Ron Garneau
At at hours	Hammer Fall		30"	Inspector:
				Soils Eng.:

LOCATION OF BORING: As shown

Depth	Casing Blows Per Foot	Sample Depths From/To	Type of Sample	Blows per 6" on Sampler	Moisture Density or Consist.	Strata Change Elev.	Soil Identification	Sample No.	Sample Pen	Sample Rec.
		5'-7'	SS	30/55/40/30	dry		No recovery pushed stone	1	24"	0"
		10'-12'	SS	1/1/2/3	moist		Gray silty sand and some clay	2	24"	24"
							Drilled to 15'			
							Installed well at 15' Materials used:			
							10' screen 2" PVC			
							4.5' riser 2" PVC			
							1 cone bottom cap			
							1 wing nut locking top cap			
							3 bags of sand			
							1 bag of benseal			
							1 bag of cement			
							1 road box			

Ground Surface to 15' | Used 4.25" Augers: Then installed well

SUMMARY: Earth Boring 17' Rock Coring Samples 2 **HOLE #** **MW-3**

GREEN MOUNTAIN BORING

PO Box 218 ° East Barre, Vermont 05649 ° 802 476-5073

TO: North Country Environmental
11 Mill Street
Barre, VT 05641
Attn.: Tom

PROJECT NAME: St. Albans Public Works

LOCATION: St. Albans

GMB JOB #: 96-132

SHEET:	4
DATE:	9/25/96
HOLE #:	B-04
LINE & STA.	
OFFSET:	none

Ground Water Observations			
At 12' at 1 hours	Type	Augers	Split Spoon
	Size I.D.	4.25"	13/8"
	Hammer Wt.		140#
At at hours	Hammer Fall		30"

Surface Elev.:	
Date Started:	9/25/96
Date Completed:	9/25/96
Boring Foreman:	Ron Garneau
Inspector:	
Soils Eng.:	

LOCATION OF BORING: As shown

Depth	Casing Blows Per Foot	Sample Depths From/To	Type of Sample	Blows per 6" on Sampler	Moisture Density or Consist.	Strata Change Elev.	Soil Identification	Sample No. Rec.	Sample Pen	
		5'-7'	SS	4/10/10/8	damp		Brown silty sand	1	24"	20"
		10'-12'	SS		moist		Gray silty sand and some clay	2	24"	24"
		15'-17'	SS	4/6/8/9	wet		Gray silty clay	3	24"	8"

Ground Surface to 15' | Used 4.25" Augers: Then SS to 17'

SUMMARY: Earth Boring 17' Rock Coring Samples 3 **HOLE #** **B-04**

APPENDIX D

Laboratory Reports

GeoLabs, Inc.

Environmental Laboratories

Phone: (617) 878-1346 Fax: (617) 871-7069

FINAL REPORT

PREPARED FOR: North Country Envir. Services, Inc.
100 Medway Street
Suite 403
Milford, MA 01757

Att: Robert Berger

PROJECT ID: NCES Job #1137
67 Aldis Street
City of St. Albans, VT

GEOLABS CLIENT #: 1325-95

SAMPLE NUMBER: 46615-46622

DATE PREPARED: October 04, 1996

PREPARED BY: Suzanne Pidgeon

APPROVED BY: Jim Chen 10-8-96
Jim Chen, Laboratory Director/Date

Location: 400 Hingham Street
Rockland, MA 02370

Mailing Address: PO Box 254
Accord, MA 02018

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	ZYZ 09/30/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER:	46615
SAMPLE LOCATION:	B-01 BORING #1 (2'-4')

	RESULTS (µg/kg)	DETECTION LIMIT (µg/kg)
Benzene	ND	500
Toluene	**2190**	500
Ethylbenzene	**1060**	500
Xylenes	**7580**	500
1,2-Dichlorobenzene	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
Chlorobenzene	ND	500
Methyl tert-butyl ether	ND	500

ND = NOT DETECTED

Method Reference:

EPA Method 8020 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	ZYZ 09/27/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER:	46616
SAMPLE LOCATION:	B-01 BORING #1 (8'-9')

	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Gasoline	46.8	5.0

	RESULTS (µg/kg)	DETECTION LIMIT (µg/kg)
Benzene	1060	25.0
Toluene	2630	250
Ethylbenzene	815	25.0
Xylenes	5660	250
1,2-Dichlorobenzene	ND	25.0
1,3-Dichlorobenzene	ND	25.0
1,4-Dichlorobenzene	ND	25.0
Chlorobenzene	ND	25.0
Methyl tert-butyl ether	1220	25.0
Methyl Ethyl Ketone	40.0	25.0
4-Methyl-2-pentanone	ND	500
Naphthalene	ND	

ND = NOT DETECTED

Method Reference:

Modified Volatile Organics 8015 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	ZYZ 09/30/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER: 46617
SAMPLE LOCATION: B-02
BORING #2 (10'-11')

	RESULTS (µg/kg)	DETECTION LIMIT (µg/kg)
Benzene	1270	500
Toluene	14800	500
Ethylbenzene	3070	500
Xylenes	29500	500
1,2-Dichlorobenzene	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
Chlorobenzene	ND	500
Methyl tert-butyl ether	ND	500

ND = NOT DETECTED

Method Reference:

EPA Method 8020 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	ZYZ 09/27/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER:	46618
SAMPLE LOCATION:	B-02
	BORING #12 (6'-7')

	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Gasoline	5310	100

	RESULTS (µg/kg)	DETECTION LIMIT (µg/kg)
Benzene	27500	500
Toluene	47800	10000
Ethylbenzene	13700	10000
Xylenes	10400	10000
1,2-Dichlorobenzene	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
Chlorobenzene	ND	500
Methyl tert-butyl ether	ND	500
Methyl Ethyl Ketone	ND	500
4-Methyl-2-pentanone	ND	500
Naphthalene	10600	10000

ND = NOT DETECTED

Method Reference:

Modified Volatile Organics 8015 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	ZYZ 09/30/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER: 46619
SAMPLE LOCATION: B-03
BORING #3 (2'-6')

	RESULTS (µg/kg)	DETECTION LIMIT (µg/kg)
Benzene	ND	50.0
Toluene	**593**	50.0
Ethylbenzene	**663**	50.0
Xylenes	**4030**	50.0
1,2-Dichlorobenzene	ND	50.0
1,3-Dichlorobenzene	ND	50.0
1,4-Dichlorobenzene	ND	50.0
Chlorobenzene	ND	50.0
Methyl tert-butyl ether	ND	50.0

ND = NOT DETECTED

Method Reference:

EPA Method 8020 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	ZYZ 09/30/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER:	46620
SAMPLE LOCATION:	B-04 BORING #4 (15'-17')

	RESULTS (µg/kg)	DETECTION LIMIT (µg/kg)
Benzene	ND	50.0
Toluene	**162**	50.0
Ethylbenzene	**94.8**	50.0
Xylenes	**1200**	50.0
1,2-Dichlorobenzene	ND	50.0
1,3-Dichlorobenzene	ND	50.0
1,4-Dichlorobenzene	ND	50.0
Chlorobenzene	ND	50.0
Methyl tert-butyl ether	ND	50.0

ND = NOT DETECTED

Method Reference:

EPA Method 8020 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	ZYZ 09/27/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER:	46621
SAMPLE LOCATION:	B-05
	BORING #25 (2'-4')

	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Gasoline	637	100

	RESULTS (µg/kg)	DETECTION LIMIT (µg/kg)
Benzene	2980	500
Toluene	13800	1000
Ethylbenzene	6160	500
Xylenes	31100	500
1,2-Dichlorobenzene	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
Chlorobenzene	ND	500
Methyl tert-butyl ether	ND	500
Methyl Ethyl Ketone	ND	500
4-Methyl-2-pentanone	ND	500
Naphthalene	38000	10000

ND = NOT DETECTED

Method Reference:

Modified Volatile Organics 8015 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	ZYZ 09/30/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER: 46622
SAMPLE LOCATION: B-05
BORING #5 (10'11')

	RESULTS (µg/kg)	DETECTION LIMIT (µg/kg)
Benzene	ND	500
Toluene	**2860**	500
Ethylbenzene	**2340**	500
Xylenes	**15600**	500
1,2-Dichlorobenzene	ND	500
1,3-Dichlorobenzene	ND	500
1,4-Dichlorobenzene	ND	500
Chlorobenzene	ND	500
Methyl tert-butyl ether	ND	500

ND = NOT DETECTED

Method Reference:

EPA Method 8020 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	NORTH COUNTRY	PROJECT ID:	NCES JOB #1137
SAMPLE TYPE:	SOIL	REPORT DATE:	10/04/96
COLLECTION DATE:	09/25/96	ANALYZED BY:	BM 10/02/96
REC'D BY LAB:	09/26/96	EXTRACTION DATE:	N/A
COLLECTED BY:	CLIENT	DIGESTION DATE:	SEE BELOW

TOTAL RCRA METALS

SAMPLE NUMBER: 46622
SAMPLE LOCATION: B-05
BORING #5 (10'-11')

PARAMETER	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)	DIGESTION DATE
ARSENIC	11.8	0.04	09/30/96
CADMIUM	0.90	0.01	09/30/96
CHROMIUM	125	0.09	09/30/96
LEAD	4.57	0.06	09/30/96
MERCURY	0.081	0.0002	10/02/96

ND = NOT DETECTED

Method Reference:

Metals Preparation	3010 (1)
Metals (except mercury)	6010 (1)
Mercury	7471 (1)

1) US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846.

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018

LIMITATIONS & EXCLUSIONS

All the professional opinions presented in this report are based solely on the scope of work conducted and sources referred to in our report. The data presented by GeoLabs in this report was collected and analyzed using generally accepted industry methods and practices at the time the report was generated. This report represents the conditions, locations and materials that were observed at the time the work was conducted. No inferences regarding other conditions, locations or materials, at a later or earlier time may be made based on the contents of the report. No other warranty, express or implied is made.

This report was prepared for the sole use of our client. Portions of the report may not be used independent of the entire report.

All analyses were performed within required holding times, in accordance with EPA protocols and using accepted QA/QC procedures. The information contained in this report is, to the best of my knowledge, accurate and complete.

GeoLabs, INC.

ENVIRONMENTAL LABORATORIES
Location:
400 Hingham Street, Rockland, MA 02370
Mailing Address:
P.O. Box 254, Accord, MA 02018
(617) 878-1346 OFFICE (617) 871-7069 FAX

CHAIN OF CUSTODY

TURNAROUND SCHEDULE: ☐ RUSH ☑ STANDARD
CLIENT DUE DATE: 10-3-96
LAB CLIENT ID#:

GeoLabs Client: North Country Env.
Address: 100 Medway St. Suite 403
Milford, MA 01757
Phone: 508-634-9800
Fax: 508-634-8259
Contact Name:

CLIENT PROJECT INFORMATION:
Project Name/ID: Job #1137
City of St. Albans, VT
67 Aldis St.
Purchase Order #: 96-452
Sample Collector: R. Berger

COMMENTS: page 1 of 1

ANALYSES REQUESTED

FIELD SAMPLE ID #	COLLECTION DATE	COLLECTION TIME	SOURCE/ LOCATION/ STATION	CONTAINER TYPE	CONTAINER #	MATRIX	COMP.	GRAB	PRES.	GEOLABS SAMPLE ID NUMBER	EPA 8020 W/MTBE	EPA 8015	TOTAL RCRA Metals: Ar, Cd, Cr, Pb Hg							
B-01	9/25/96	900A	Boring #1 2'-4'	G	1	S	✓		ICE	46615	✓									
B-01	9/25/96	915A	Boring #1 8'-9'	G	1	S	✓		ICE	46616		✓								
B-02	9/25/96	1030A	Boring #2 10'-11'	G	1	S	✓		ICE	46617	✓									
B-02	9/25/96	1040A	Boring #2 6'-7'	G	1	S	✓		ICE	46618		✓								
B-03	9/25/96	1150A	Boring #3 2'-4'	G	1	S	✓		ICE	46619	✓									
B-04	9/25/96	145P	Boring #4 15'-17'	G	1	S	✓		ICE	46620	✓									
B-05	9/25/96	250P	Boring #5 2'-4'	G	1	S	✓		ICE	46621		✓								
B-05	9/25/96	315P	Boring #5 10'-11'	G	1	S	✓		ICE	46622	✓		✓							

CONTAINER TYPE CODES: A=Amber B=Bag G=Glass P=Plastic V=VOA S=Sterile O=Other

MATRIX CODES: WW=Wastewater GW=Groundwater DW=DrinkingWater S=Soil O=Oil SL=Sludge OT=Other

PRESERVATIVE CODES 1=Hcl 2=HNO_3 3=H_2SO_4 4=$Na_2S_2O_3$ 5=NaOH 6=4C 7=Ascorbic Acid

RELINQUISHED BY: DATE/TIME 845A 9/26/96

RECEIVED BY: DATE/TIME Mark Sawyer 9/26/96 1340

RELINQUISHED BY: DATE/TIME Mark Sawyer 9/24/96 16:30

RECEIVED BY: DATE/TIME

RELINQUISHED BY: DATE/TIME

RECEIVED BY GeoLabs: DATE/TIME 9/26/96 16:31

GeoLabs, Inc.

Environmental Laboratories

Phone: (617) 878-1346 Fax: (617) 871-7069

FINAL REPORT

PREPARED FOR: North Country Environmental Services, Inc.
100 Medway Street
Suite 403
Milford, MA 01757

Attn: Robert Berger

PROJECT ID: NCES 1137
City of St. Albans

GEOLABS CLIENT #: 1325-95

SAMPLE NUMBER: 46850-46857

DATE PREPARED: October 10, 1996

PREPARED BY: Lynda Davis

APPROVED BY: Jim Chen 10-11-96
Jim Chen, Laboratory Director/Date

Location: 400 Hingham St.
Rockland, MA 02370

Mailing Address: PO Box 254
Accord, MA 02018

GEOLABS, INC.
P.O. BOX 254
ACCORD, MA 02018
(617) 878-1346

CLIENT NAME:	**NORTH COUNTRY ENV.**	PROJECT ID:	CITY OF ALBANS
SAMPLE TYPE:	GROUNDWATER	REPORT DATE:	10/10/96
COLLECTION DATE:	9/30/96	ANALYZED BY:	ZYZ 10/7/96
REC'D BY LAB:	10/2/96	EXTRACT DATE:	N/A
COLLECTED BY:	CLIENT	DIGEST DATE:	N/A

VOLATILE ORGANICS ANALYSIS

SAMPLE NUMBER: 46851
SAMPLE LOCATION: MW-01

	RESULTS (mg/L)	DETECTION LIMIT (mg/L)
Gasoline	**29.5**	5

	RESULTS (µg/L)	DETECTION LIMIT (µg/L)
Benzene	**795**	250
Toluene	**545**	250
Ethylbenzene	**55.4**	5
Xylenes	**277**	5
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Chlorobenzene	ND	5
Methyl tert-butyl ether	**3260**	250
Methyl Ethyl Ketone	ND	5
4-Methyl-2-pentanone	ND	5
Naphthalene	ND	100

ND = NOT DETECTED

Method Reference:
EPA Method Modified 8015 (1) by GC/MS

1) U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1986, 3rd Edition.

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CLIENT NAME:	**NORTH COUNTRY ENV.**	PROJECT ID:	CITY OF ALBANS
SAMPLE TYPE:	GROUNDWATER	REPORT DATE:	10/10/96
COLLECTION DATE:	9/30/96	ANALYZED BY:	ZYZ 10/7/96
REC'D BY LAB:	10/2/96	EXTRACT DATE:	N/A
COLLECTED BY:	CLIENT	DIGEST DATE:	N/A

VOLATILE ORGANICS ANALYSIS

SAMPLE NUMBER: 46853
SAMPLE LOCATION: MW-02

	RESULTS (mg/L)	DETECTION LIMIT (mg/L)
Gasoline	**107**	10

	RESULTS (µg/L)	DETECTION LIMIT (µg/L)
Benzene	**12100**	500
Toluene	**20800**	500
Ethylbenzene	**680**	50
Xylenes	**12500**	500
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Chlorobenzene	ND	5
Methyl tert-butyl ether	**1420**	50
Methyl Ethyl Ketone	**18**	5
4-Methyl-2-pentanone	**9.78**	5
Naphthalene	ND	100

ND = NOT DETECTED

Method Reference:
EPA Method Modified 8015 (1) by GC/MS

1) U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1986, 3rd Edition.

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CLIENT NAME:	**NORTH COUNTRY ENV.**	PROJECT ID:	CITY OF ALBANS
SAMPLE TYPE:	GROUNDWATER	REPORT DATE:	10/10/96
COLLECTION DATE:	9/30/96	ANALYZED BY:	ZYZ 10/7/96
REC'D BY LAB:	10/2/96	EXTRACT DATE:	N/A
COLLECTED BY:	CLIENT	DIGEST DATE:	N/A

VOLATILE ORGANICS ANALYSIS

SAMPLE NUMBER: 46855
SAMPLE LOCATION: MW-03

	RESULTS (mg/L)	**DETECTION LIMIT (mg/L)**
Gasoline	**22.6**	1

	RESULTS (µg/L)	**DETECTION LIMIT (µg/L)**
Benzene	**842**	50
Toluene	**2190**	50
Ethylbenzene	**168**	5
Xylenes	**4320**	50
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Chlorobenzene	ND	5
Methyl tert-butyl ether	ND	5
Methyl Ethyl Ketone	**20.7**	5
4-Methyl-2-pentanone	ND	5
Naphthalene	ND	100

ND = NOT DETECTED

Method Reference:
EPA Method Modified 8015 (1) by GC/MS

1) U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1986, 3rd Edition.

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CLIENT NAME:	**NORTH COUNTRY ENV.**	PROJECT ID:	CITY OF ALBANS
SAMPLE TYPE:	GROUNDWATER	REPORT DATE:	10/10/96
COLLECTION DATE:	9/30/96	ANALYZED BY:	ZYZ 10/7/96
REC'D BY LAB:	10/2/96	EXTRACT DATE:	N/A
COLLECTED BY:	CLIENT	DIGEST DATE:	N/A

VOLATILE ORGANICS ANALYSIS

SAMPLE NUMBER: 46857
SAMPLE LOCATION: MW-04

	RESULTS (mg/L)	DETECTION LIMIT (mg/L)
Gasoline	**27.1**	5

	RESULTS (µg/L)	DETECTION LIMIT (µg/L)
Benzene	**1630**	250
Toluene	**3260**	250
Ethylbenzene	**418**	250
Xylenes	**3880**	250
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Chlorobenzene	ND	5
Methyl tert-butyl ether	**1350**	250
Methyl Ethyl Ketone	ND	5
4-Methyl-2-pentanone	ND	5
Naphthalene	ND	100

ND = NOT DETECTED

Method Reference:
EPA Method Modified 8015 (1) by GC/MS

1) U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1986, 3rd Edition.

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CLIENT NAME:	**NORTH COUNTRY ENV.**	PROJECT ID:	CITY OF ALBANS
SAMPLE TYPE:	GROUNDWATER	REPORT DATE:	10/10/96
COLLECTION DATE:	9/30/96	ANALYZED BY:	ZYZ 10/7/96
REC'D BY LAB:	10/2/96	EXTRACT DATE:	N/A
COLLECTED BY:	CLIENT	DIGEST DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER: 46850
SAMPLE LOCATION: MW-01

	RESULTS (ug/L)	DETECTION LIMIT (ug/L)
Benzene	**795**	250
Toluene	**545**	250
Ethylbenzene	**55.4**	5
Xylenes	**277**	5
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Chlorobenzene	ND	5
Methyl tert-butyl ether	**3260**	250

ND = NOT DETECTED

Method Reference:

EPA Method 8020 by 8240 (1) (GC/MS)

1) U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1986, 3rd Edition.

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CLIENT NAME:	**NORTH COUNTRY ENV.**	PROJECT ID:	CITY OF ALBANS
SAMPLE TYPE:	GROUNDWATER	REPORT DATE:	10/10/96
COLLECTION DATE:	9/30/96	ANALYZED BY:	ZYZ 10/7/96
REC'D BY LAB:	10/2/96	EXTRACT DATE:	N/A
COLLECTED BY:	CLIENT	DIGEST DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER: 46852
SAMPLE LOCATION: MW-02

	RESULTS (ug/L)	DETECTION LIMIT (ug/L)
Benzene	**12100**	500
Toluene	**20800**	500
Ethylbenzene	**680**	50
Xylenes	**12500**	500
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Chlorobenzene	ND	5
Methyl tert-butyl ether	**1420**	50

ND = NOT DETECTED

Method Reference:

EPA Method 8020 by 8240 (1) (GC/MS)

1) U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1986, 3rd Edition.

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CLIENT NAME:	**NORTH COUNTRY ENV.**	PROJECT ID:	CITY OF ALBANS
SAMPLE TYPE:	GROUNDWATER	REPORT DATE:	10/10/96
COLLECTION DATE:	9/30/96	ANALYZED BY:	ZYZ 10/7/96
REC'D BY LAB:	10/2/96	EXTRACT DATE:	N/A
COLLECTED BY:	CLIENT	DIGEST DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER: 46854
SAMPLE LOCATION: MW-03

	RESULTS (ug/L)	DETECTION LIMIT (ug/L)
Benzene	**842**	50
Toluene	**2190**	50
Ethylbenzene	**168**	5
Xylenes	**4320**	50
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Chlorobenzene	ND	5
Methyl tert-butyl ether	ND	5

ND = NOT DETECTED

Method Reference:

EPA Method 8020 by 8240 (1) (GC/MS)

1) U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1986, 3rd Edition.

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CLIENT NAME:	**NORTH COUNTRY ENV.**	PROJECT ID:	CITY OF ALBANS
SAMPLE TYPE:	GROUNDWATER	REPORT DATE:	10/10/96
COLLECTION DATE:	9/30/96	ANALYZED BY:	ZYZ 10/7/96
REC'D BY LAB:	10/2/96	EXTRACT DATE:	N/A
COLLECTED BY:	CLIENT	DIGEST DATE:	N/A

VOLATILE AROMATIC COMPOUNDS

SAMPLE NUMBER: 46856
SAMPLE LOCATION: MW-04

	RESULTS (ug/L)	DETECTION LIMIT (ug/L)
Benzene	**1630**	250
Toluene	**3260**	250
Ethylbenzene	**418**	250
Xylenes	**3880**	250
1,2-Dichlorobenzene	ND	5
1,3-Dichlorobenzene	ND	5
1,4-Dichlorobenzene	ND	5
Chlorobenzene	ND	5
Methyl tert-butyl ether	**1350**	250

ND = NOT DETECTED

Method Reference:

EPA Method 8020 by 8240 (1) (GC/MS)

1) U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 1986, 3rd Edition.

GEOLABS, INC.
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ACCORD, MA 02018

LIMITATIONS & EXCLUSIONS

All the professional opinions presented in this report are based solely on the scope of work conducted and sources referred to in our report. The data presented by GeoLabs in this report was collected and analyzed using generally accepted industry methods and practices at the time the report was generated. This report represents the conditions, locations and materials that were observed at the time the work was conducted. No inferences regarding other conditions, locations or materials, at a later or earlier time may be made based on the contents of the report. No other warranty, express or implied is made.

This report was prepared for the sole use of our client. Portions of the report may not be used independent of the entire report.

All analyses were performed within required holding times, in accordance with EPA protocols and using accepted QA/QC procedures. The information contained in this report is, to the best of my knowledge, accurate and complete.

GeoLabs, INC.

ENVIRONMENTAL LABORATORIES
Location:
400 Hingham Street, Rockland, MA 02370
Mailing Address:
P.O. Box 254, Accord, MA 02018
(617) 878-1346 OFFICE (617) 871-7069 FAX

CHAIN OF CUSTODY

TURNAROUND SCHEDULE:
☐ RUSH ☑ STANDARD
CLIENT DUE DATE: 10-10-96
LAB CLIENT ID#:

GeoLabs Client: North Country Eniv.
Address: 100 Medway St., Suite 403
Milford, MA. 01757
Phone: 508-634-9800
Fax: 508-634-8259
Contact Name: Rob Berger

CLIENT PROJECT INFORMATION:
Project Name/ID: City of St. Albans
N.C.E.S. Job# 1137
Purchase Order #: 96-476
Sample Collector: Tom S./RB

COMMENTS:
Samples collected due to gasoline release

page 1 of 1

FIELD SAMPLE ID #	COLLECTION DATE	COLLECTION TIME	SOURCE/ LOCATION/ STATION	CONTAINER TYPE	CONTAINER #	MATRIX	COMP.	GRAB	PRES.	GEOLABS SAMPLE ID NUMBER	ANALYSES REQUESTED: EPA 8020 w/MTBE		ANALYSES REQUESTED: EPA 8015							
MW-01	9-30-96	PM	MONITORING WELL	V	~~1~~ 2	GW		X	1	46850	X									
MW-01	9-30-96	PM	" "	V	2	GW		X	1	46851			X							
MW-02	9-30-96	PM	" "	V	2	GW		X	1	46852	X									
MW-02	9-30-96	PM	" "	V	2	GW		X	1	46853			X							
MW-03	9-30-96	PM	" "	V	2	GW		X	1	46854	X									
MW-03	9-30-96	PM	" "	V	2	GW		X	1	46855			X							
MW-04	9-30-96	PM	" "	V	2	GW		X	1	46856	X									
MW-04	9-30-96	PM	" "	V	2	GW		X	1	46857			X							

CONTAINER TYPE CODES: A = Amber B = Bag G = Glass P = Plastic V = VOA S = Sterile O = Other

MATRIX CODES: WW = Wastewater GW = Groundwater DW = DrinkingWater S = Soil O = Oil SL = Sludge OT = Other

PRESERVATIVE CODES 1 = Hcl 2 = HNO_3 3 = H_2SO_4 4 = $Na_2S_2O_3$ 5 = NaOH 6 = 4C 7 = Ascorbic Acid

RELINQUISHED BY: DATE/TIME 1130 10-2-96

RECEIVED BY: DATE/TIME

RELINQUISHED BY: DATE/TIME Mark Swan 10/2/96 14:45

RECEIVED BY: DATE/TIME

RELINQUISHED BY: DATE/TIME

RECEIVED BY GeoLabs: DATE/TIME 10/2/96 1445

RECEIVED BY: DATE/TIME 10/2/96 13:45